

What is claimed:

1. A method for facilitating exploration of biological and chemical data,  
5 comprising:
  - a) providing a database comprising a plurality of standard gene expression profiles, each profile comprising a representation of the expression level of a plurality of genes in a cell exposed to a standard compound and a representation of the standard compound;
  - 10 b) displaying a selected gene expression profile;
  - c) displaying correlation information related to said gene expression profile to facilitate generation of a hypothesis; and
  - d) displaying relevant product information to facilitate testing said hypothesis.
- 15 2. The method of claim 1, wherein said correlation information is selected from the group consisting: identification of a profile similar to said gene expression profile, identification of a compound that produces a similar profile, identification of a gene modulated in said profile, identification of a disease or disorder in which a plurality  
20 of the same genes are modulated in a similar fashion, identification of compounds having similar physical and chemical properties as the compound used to generate the profile, identification of compounds having similar shapes, identification of compounds having similar biological activities, identification of a gene or protein having sequence similarity to a selected gene or protein, identification of a gene or protein having a similar  
25 known function or activity, identification of a gene or protein subject to modulation or control by the same compound, identification of a gene or protein that belongs to the same metabolic or signal pathway, and identification of a gene or protein belonging to similar metabolic or signal pathways.
- 30 3. The method of claim 1, wherein said relevant product information is selected from the group consisting of: information regarding a bioassay reagent useful for

measuring activity of an identified enzyme, information regarding a compound useful as a positive control, information regarding a compound useful as a negative control, information regarding a kit for purifying an identified protein, information regarding antibodies for determining and/or isolating substances, information regarding a compound similar to the test compound useful for further study, additional data regarding gene or protein function and/or relationships, sequence data from other species, information regarding metabolic and/or signal pathways to which the gene or protein belong, information regarding a DNA microarray useful for determining expression of the gene and/or related genes, and information and analysis regarding features of a compound that are likely to be responsible for the observed activity.

4. The method of claim 3, wherein said product information further comprises a hyperlink that facilitates direct purchase of said product.

5. The method of claim 1, wherein said database further comprises drug signatures for a plurality of compounds, wherein each said drug signature comprises a representation of the physical and chemical characteristics of each compound, data regarding the effect of each compound on the transcription of a plurality of genes, and data regarding the effect of each compound on a plurality of proteins.

6. The method of claim 1, wherein said gene expression profile is selected on the basis of its similarity to an experimental expression profile provided by the user.

7. A method for facilitating exploration of biological and chemical data, comprising:

- a) providing a database comprising drug signatures for a plurality of compounds, wherein said drug signature comprise a representation of the physical and chemical characteristics of each compound, data regarding the effect of each compound on the transcription of a plurality of genes, and data regarding the effect of each compound on a plurality of proteins;
- b) displaying a selected drug signature;

- c) displaying correlation information related to said drug signature to facilitate generation of a hypothesis; and
- d) displaying relevant product information to facilitate testing said hypothesis.

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8. The method of claim 7, wherein said relevant product information is selected from the group consisting of: information regarding a bioassay reagent useful for measuring activity of an identified enzyme, information regarding a compound useful as a positive control, information regarding a compound useful as a negative control, information regarding a kit for purifying an identified protein, information regarding antibodies for determining and/or isolating substances, information regarding a compound similar to the test compound useful for further study, additional data regarding gene or protein function and/or relationships, sequence data from other species, information regarding metabolic and/or signal pathways to which the gene or protein belong, information regarding a DNA microarray useful for determining expression of the gene and/or related genes, and information and analysis regarding features of a compound that are likely to be responsible for the observed activity.

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9. The method of claim 8, wherein said product information further comprises a hyperlink that facilitates direct purchase of said product.

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10. A system for facilitating exploration of biological and chemical data, comprising:

a database comprising a plurality of standard gene expression profiles, each profile comprising a representation of the expression level of a plurality of genes in a cell exposed to a standard compound and a representation of the standard compound;

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input means for accepting data and user selections;

selection means for selecting a gene expression profile;

correlation selection means for identifying correlation information related to said

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gene expression profile;

product information selection means for selecting information regarding relevant products related to said gene expression profile; and  
display means for displaying information regarding said gene expression profile.

5           11.     The system of claim 10, wherein said database further comprises drug signatures for a plurality of compounds, wherein each said drug signature comprises a representation of the physical and chemical characteristics of each compound, data regarding the effect of each compound on the transcription of a plurality of genes, and data regarding the effect of each compound on a plurality of proteins.

10           12.     A system for facilitating exploration of biological and chemical data, comprising:

            a database comprising drug signatures for a plurality of compounds, wherein each said drug signature comprises a representation of the physical and chemical characteristics of each compound, data regarding the effect of each compound on the transcription of a plurality of genes, and data regarding the effect of each compound on a plurality of proteins;

            input means for accepting data and user selections;

            selection means for selecting a gene expression profile;

20           correlation selection means for identifying correlation information related to said gene expression profile;

            product information selection means for selecting information regarding relevant products related to said gene expression profile; and

            display means for displaying information regarding said gene expression profile.